

Eggleton 37-1-4

**Remarks**

Reconsideration of remaining claims 1-8 is respectfully requested.

In the Office action dated April 12, 2005, the Examiner rejected various combinations of claims under 35 USC §§ 102(b) and 103(a). The Examiner's various rejections will be discussed below in the order appearing in the Office action.

**Election/Restriction**

Applicants affirm the election, without traverse, of the claims of Group I, claims 1-8, for prosecution in this application. Remaining method claims 9-12 have been cancelled from this application.

**35 USC § 102(b) Rejection - Claims 1-6**

The Examiner first rejected claims 1-6 under 35 USC 102(b) as being "anticipated" by US Patent 6,301,420 (Greenaway et al.). In the rejection, the Examiner stated that "[b]ecause of highly accurate and precise geometrical arrangement of fiber components [in Greenaway et al.], the endfaces maintain the exact same geometrical configuration as the rest of the fiber. Therefore, the fiber end faces that do not change the behavior of light passing through the fiber in the direction parallel to the endfaces".

In response, applicants have amended claim 1 to clearly define the inventive microstructured optical fiber segment of the present invention to be utilized such that the segment is oriented *orthogonal* to the commonly-employed coaxial utilization. See, for example, FIGs. 5 and 6 of Greenaway et al., where the optical signal path is coextensive with the optical axis of the microstructured fiber; that is, an input optical signal enters through an endface of an individual fiber element within the segment and exits through an opposing endface. In contrast, the subject matter of the present invention is directed to allowing for an optical signal to pass through the "vertical sidewalls" of the microstructured fiber segment, as defined by amended claim 1, where the "vertical sidewalls" have been further defined as including an "input port" and an "output port". The Examiner is directed to FIGs. 4 and 8 of this application, which illustrate an optical signal passing through the sidewalls of the microstructured fiber segment.

Eggleton 37-1-4

Applicants believe that the above amendments to claim 1 now clearly define the utilization of the vertical sidewalls of the microstructured fiber segment as the entrance and exit ports, where such a utilization is not disclosed or even suggested in the cited Greenaway et al. reference. Applicants thus respectfully request the Examiner to reconsider this rejection and find claims 1-6 (as amended) to now be in condition for allowance.

**35 USC § 103(a) Rejection – Claim 7**

The Examiner next rejected dependent claim 7 under 35 USC 103(a) as being unpatentable over Greenaway et al. (as above), when further considered with US Patent 6,075,915 (Koops et al.). The Koops et al. reference was cited by the Examiner as teaching the use of a plurality of etched cylinders along an optical fiber signal path.

For the reasons stated above, applicants assert that the combination of Koops et al. and Greenaway et al. cannot be found to render obvious the subject matter of claim 7. In particular, the cited combination does not disclose the use of the sidewalls of the fiber as the input and output ports. Indeed, Koops et al. is utilized in the conventional fashion (see FIG. 1, for example), where the cylinders are formed to be orthogonal to the propagation direction of the signal along the axis of the optical fiber. Referring to applicants' FIG. 5, it is shown that by using the vertical sidewalls of the fiber segment as the input and output ports, the plurality of cylinders are oriented as *parallel* with the propagation direction of the optical signal.

Without any teaching regarding the formation of the input and output ports along the vertical sidewalls, with the cylinders being parallel to the segment endfaces, applicants assert the combination of Greenaway et al. with Koops et al. cannot be found to render obvious the subject matter of claim 7. Applicants thus respectfully request the Examiner to reconsider this rejection and find claim 7, as amended, to be in condition for allowance.

**35 USC § 103(a) Rejection – Claim 8**

Lastly, the Examiner rejected claim 8 under 35 USC 103(a) as being unpatentable over Greenaway et al. (as above), in further view of US Patent Publication 2003/0231845

Eggleton 37-1-4

(Patlakh et al). The Patlakh et al. reference was cited by the Examiner as disclosing the use of tapered "end portions" in photonic crystal fibers.). Referring to FIG. 6c of Patlakh et al., it is clear that the "tapered" portions are indeed formed along the "sidewalls" of the fiber segment. However, the input and output ports of the Patlakh segment are formed at the endfaces thereof (see arrows 244 and 246), such that the tapers are not along the input/output ports, but are orthogonal thereto. In contrast, it is precisely the input/output port areas that are tapered in applicant's arrangement, as defined by claim 8 and illustrated in FIG. 8.

Based on these distinctions, applicants assert that the combination of Greenaway et al. and Patlakh et al. cannot be found to render obvious the subject matter of claim 8. Applicants thus respectfully request the Examiner to reconsider this rejection and find claim 8 to be in condition for allowance.

#### *Summary*

The present application contains claims 1-8, where independent claim 1 and other dependent claims have been amended to clarify the subject matter of the present invention. Claims 9-12 have been cancelled from this application. Applicants believe that the case, in its present form, is now in condition for allowance and respectfully request an early and favorable response from the Examiner in that regard. If for some reason or other the Examiner does not agree that the case is ready to issue and that an interview or telephone conversation would further the prosecution, the Examiner is invited to contact applicants' attorney at the telephone number listed below.

Respectfully submitted,

Benjamin J. Eggleton et al.

By: Wendy W. Koba  
Wendy W. Koba  
Reg. No. 30509  
Attorney for applicants  
610-346-7112

Date: 7/8/05